

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application.

Listings of Claims:

1. (Currently Amended) A voice feature extraction device comprising:
a noise reduction system coefficient calculation unit that adds a simulated voice signal to a surrounding signal, and that beforehand calculates a noise reduction system coefficient of a noise reduction system to be used, and
an input voice power spectrum calculation unit that calculates a power spectrum vector of a power spectrum signal produced from an processed input voice signal, wherein
the noise reduction system that is set to the coefficient calculated by the noise reduction system coefficient calculation unit executes an operationa noise reduction processing to on the power spectrum vector acquired by the input voice power spectrum calculation unit.
2. (Original) A voice feature extraction device as claimed in claim 1, wherein the noise reduction system coefficient calculation unit includes a filter coefficient calculation unit that determines a filter coefficient of the noise reduction system to be used, and a power calculation unit that converts the filter coefficient acquired by the filter coefficient calculation unit into the power spectrum vector.-
3. (Currently Amended) A voice feature extraction device as claimed in claim 2, wherein the filter coefficient calculation unit executes an adaptive control to a signal having an the input surrounding voice signal and a the simulated voice signal added, and acquires a tap coefficient to thereby calculate the filter coefficient.
4. (Original) A voice feature extraction device as claimed in claim 3, wherein a specific gain adjustment is executed to the simulated voice signal.

5. (Original) A voice feature extraction device as claimed in claim 1, wherein the voice feature extraction device is applied to a voice recognition device of a vehicle navigation system.

6. (Original) A voice feature extraction device as claimed in claim 1, wherein the voice feature extraction device is applied to a speaker recognition device.

7. (Original) A voice feature extraction device as claimed in claim 1, wherein the voice feature extraction device is applied to a loudness compensation system.

8. (Currently Amended) A voice feature extraction device comprising:

~~a noise reduction system coefficient calculation unit that, beforehand adds a simulated voice signal to a surrounding signal, and that calculates a noise reduction system coefficient of a noise reduction system to be used, and~~

~~a microphone that collects voices~~ an input voice signal of a user,

~~a window function operation unit that samples a~~ the ~~voice signal inputted from the microphone, and prevents generation of high frequency components caused by a data jump at intervals of each frame,~~

~~an input voice~~ signal power spectrum calculation unit that calculates a power spectrum vector of the input voice signal processed by the window function operation unit, and

~~a noise reduction system that is sets the power spectrum vector acquired by the input voice power spectrum calculation unit to the coefficient acquired calculated by the noise reduction system coefficient calculation unit, and executes an~~ a ~~noise reduction operation processing on the power spectrum vector.~~

9. (Original) A voice feature extraction device as claimed in claim 8, wherein the noise reduction system coefficient calculation unit includes a filter coefficient calculation unit that determines a filter coefficient of the noise reduction system to be used, and a power calculation unit that converts the filter coefficient acquired by the filter coefficient calculation unit into the power spectrum vector.

10. (Currently Amended) A voice feature extraction device as claimed in claim 9, wherein the filter coefficient calculation unit executes an adaptive control to a signal having an input voice signal and the surrounding signal and a simulated voice signal added, and acquires a tap coefficient to thereby calculate the filter coefficient.

11. (Currently Amended) A voice feature extraction device as claimed in claim 9, wherein the filter coefficient calculation unit executes a specific gain adjustment to the simulated voice signal, executes an adaptive control to a signal having the input voice signal and the gain-adjusted simulated voice signal added, and acquires a tap coefficient to thereby calculate the filter coefficient.

12. (Currently Amended) A method of extracting voice features comprising the steps of:

adding a simulated voice signal to a surrounding signal;

calculating in advance a noise reduction system coefficient of a noise reduction system to be used, and

calculating a power spectrum vector of a power spectrum signal produced from an unprocessed input voice signal,

wherein the noise reduction system having that is set to the calculated noise reduction system coefficient executes an operation of noise reduction processing to on the power spectrum vector, and extracts the voice features.

13. (Currently Amended) A method of extracting voice features as claimed in claim 12, wherein the noise reduction system coefficient is calculated by determining a filter coefficient of the noise reduction system to be used, and by converting calculating the determined filter coefficient into the power spectrum vector from the determined filter coefficient.

14. (Currently Amended) A method of extracting voice features as claimed in claim 13, wherein the filter coefficient is calculated by executing an adaptive control to a signal having produced by adding an input voice signal and the surrounding signal and a simulated voice signal added to acquire a tap coefficient.

15. (Original) A method of extracting voice features as claimed in claim 14, wherein a specific gain adjustment is executed to the simulated voice signal.

16. (Currently Amended) A method of extracting voice features comprising the steps of:

adding a simulated voice signal to a surrounding signal;
~~calculating in advance a noise reduction system coefficient of a noise reduction system to be used, and~~
sampling a voice signal inputted from a microphone,
executing a processing to prevent generation of high frequency components of the input voice signal sampled,
calculating a power spectrum vector of a power spectrum signal produced from of the input voice signal that is processed to prevent generation of high frequency components, and
calculating a voice feature from the power spectrum vector ~~by means of~~via the noise reduction system having that is set to the calculated noise reduction system coefficient set.

17. (Currently amended) ~~A-~~The method of extracting voice features as claimed in claim 16, wherein the noise reduction system coefficient is attained by:

~~adding a surrounding voice signal inputted from the microphone and a specific simulated voice signal,~~
executing an adaptive control to the added signals to thereby calculate a filter coefficient, and
applying a fast Fourier transform to the filter coefficient to thereby calculate the power spectrum vector.

18. (Currently Amended) A voice feature extraction device comprising:
a microphone that collects a surrounding voice signal;
a simulated voice signal generation unit that generates a specific simulated voice signal;
a gain adjustment unit that adjusts a gain of the simulated voice signal;

an adder that adds the surrounding voice signal collected by the microphone and the gain-adjusted simulated voice signal;

a delay processing unit that delays the gain-adjusted simulated voice signal by a specific predetermined time;

an adaptive filter that executes an adaptive control on the basis of the signals added by the adder and the simulated voice signal delayed by the delay processing unit, and generates a filter coefficient;

an FFT operation unit that executes a fast Fourier transform ~~to~~on ~~a~~the filter coefficient attained generated by the adaptive control of the adaptive filter;

a power calculation unit that calculates a power spectrum vector from a power spectrum signal attained calculated by the FFT operation unit; and

a noise reduction system having the power spectrum vector calculated by the power calculation unit set as a noise reduction coefficient.